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ABSTRACT

This study explores the applicability of the Career Decision-Making Self-Efficacy Scale (CDMSE) to Chinese college students. The reliability and validity of the scale are examined using two independent samples (128 students from a polytechnic institute and 157 students from a teacher's college in China). The results indicate that the CDMSE is relatively reliable (r = .94) in both samples. A principal component factor analysis reveals that the CDMSE is a generalized measure of self-efficacy for career decision making. The CDMSE is not related to age, gender, and ability, but it is correlated with general self-efficacy and social self-efficacy in both samples. The implications of the findings are discussed in the context of Chinese socioeconomic environment. (Contains 15 references and 2 tables.) (Author/GCP)

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Psychometric Properties of the Career Decision-Making Self-Efficacy Scale in Chinese College Students

Abstract

This study explored the applicability of the Career Decision-Making Self-Efficacy Scale (CDMSE, Taylor & Betz, 1983) to Chinese college students. The reliability and validity of the scale were examined using two independent samples (128 students from a polytechnic institute & 157 students from a teacher's college in China). The results indicated that the CDMSE was relatively reliable ($\underline{r}$ = .94) in both samples. A principal component factor analysis revealed that the CDMSE was a generalized measure of self-efficacy for career decision-making. The CDMSE was not related to age, gender, and ability, but, it was correlated with general self-efficacy and social self-efficacy in both samples. The implications of the findings are discussed in the context of Chinese socioeconomic environment.

Psychometric Properties of the Career Decision-Making Self-Efficacy Scale in Chinese College Students

The investigations of the role of self-efficacy in making career decisions represent a growing trend in the study of career development (Hackett & Betz, 1995). This trend began with the work of Taylor and Betz (1983) on the development of a Career Decision-Making Self-Efficacy (CDMSE) scale. Initially, the CDMSE was designed to measure five behaviors (accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving) relevant to the career choice competencies. However, researchers failed to find clear-cut structures as many items in the CDMSE had high loading on several factors (Robbins, 1985; Taylor & Betz, 1983; Taylor & Popma, 1990). A number of investigators suggest that the CDMSE may be a generalized measure of self-efficacy for career decision-making (Robbins, 1985; Taylor & Betz, 1983; Taylor & Popma, 1990).

Consistent findings regarding the concurrent validity of the CDMSE have been reported in the literature (Bergeron & Romano, 1994; Luzzo, 1993; Mathieu, Sowa, & Niles, 1993; Niles & Sowa, 1992; Robbins, 1985; Taylor & Popma, 1990). Also, many researchers reported relatively high internal consistency of the CDMSE (coefficient alpha ranged from .88 to .97; Luzzo, 1993; Robbins, 1985; Taylor & Betz, 1983). Further, Luzzo's (1993) study revealed that the CDMSE had a moderately high level of test-retest reliability (r = .83). Previous studies also indicated that gender and abilities, as measured by the ACT, the SAT, and GPA scores, may not be related to the CDMSE (Luzzo, 1993; Luzzo & Ward, 1995; Taylor & Betz, 1983; Taylor & Popma, 1990). Men and women appeared to be similar in perceived abilities for arriving at decisions about what occupation to pursue. In terms of the relation of age to the CDMSE, a couple of researchers

reported a weak but significant correlation between the two variables (r = .168, Luzzo, 1993; r = .269, Luzzo & Ward, 1996).

Despite the extensive research on the CDMSE, researchers argued for continued investigation of the reliability and validity of this scale (Luzzo, 1993; Robbins, 1985). They pointed out that there were several problems associated with the study of career decision-making self-efficacy. First, consistent reporting of the relationships between age, academic success, gender, and the CDMSE were lacking in the literature (Hackett & Betz, 1995; Luzzo, 1993). Second, the majority studies on the CDMSE were conducted in the U.S. There is a strong need to extend the validity of the construct of career self-efficacy and related concepts to other populations, especially non Caucasian populations (Hackett & Betz, 1995; Lent & Hackett, 1987). A few studies have been conducted with ethnically diverse samples outside the U. S. These investigations generally supported the applicability of career self-efficacy theory to college students from Arab and Japanese cultures (Abdalla, 1995; Urakami, 1993, 1996). However, more studies are needed to explore the applicability of the CDMSE to people from different cultures.

This presentation reports the results of a preliminary study conducted in China. The purposes of the study included: (a) to examine the reliability of the CDMSE in a population (Chinese college students) that has not been included in the prior investigations; (b) to assess the construct validity of the CDMSE using a factor analysis method; and (c) to evaluate the convergent validity of the CDMSE.

Method

Participants. Two independent samples from two universities in a medium city in China were used. The first sample consisted of 128 students from a polytechnic institute. Of them, 59

were females and 69 were males. The average age was 21 years old. In terms of the status of the year in school, 50.8% of the participants were first year students and 49.2% were juniors. The second sample contained 157 students from a teacher's college. Of them, 114 were females and 42 were males. The average age was 21 years old (Table 1). Fifty-two percent of the participants were first year students and 48% were juniors. First year students were recruited from a mathematics class which was required for all freshmen in both universities. Juniors were recruited from a statistics class which was also required for all juniors in both universities.

Instruments. The CDMSE was used to assess career decision-making self-efficacy beliefs. In this study, the CDMSE was translated into Chinese by a bilingual graduate student in counseling psychology and a bilingual counseling psychologist via back translation. One item (Find and use the placement office on campus) in the CDMSE was deleted because there was no such a service available in the participants' schools. One item was slightly adapted to accommodate the Chinese situation, that is, the word "English" in the statement "Find information about companies which employ people with college majors in English" was replaced with the word "Chinese".

The General Self-Efficacy scale (GSE) was designed to measure general self-efficacy expectations (Sherer, Maddux, Mercandante, Prentice-Dunn, Jacobs, & Rogers, 1982). It consists of two scales: the general self-efficacy scale and the social self-efficacy scale. The GSE was translated into Chinese by a bilingual graduate student in counseling psychology and a bilingual counseling psychologist via back translation. In this study, the reliability of the GSE was .76 in the polytechnic institute sample and .75 in the teacher's college sample, respectively.

Participants' mathematics and Chinese language scores on the National College Admission Test were obtained from the university records for all participants and were used as the measures of individuals' ability. A demographic sheet was developed. It contained the participants' age, gender, and grade.

Procedure. Ten students (five males and five females) from the polytechnic institute were interviewed using open-end versions of the CDMSE and the GSE. The investigator who is bilingual read each item on the CDMSE and the GSE to the interviewees and asked them to provide opinions on the appropriateness of the items. After the interview, minor changes were made on the scales. Then, a research assistant who was not the class instructor distributed the research questionnaires to 128 students at the polytechnic institute during regularly scheduled class meeting time. All participants completed the questionnaires in class. The similar procedures, except the interview, were repeated at the teacher's college with 157 students.

Results

A Cronbach reliability coefficient of the CDMSE was calculated for the two samples respectively. For both samples, the alpha coefficient was .94. A principal component factor analysis with varimax rotation was used to investigate the structure of the 49 items on the CDMSE. Based on theoretical considerations, five factors were extracted. For the polytechnic institute sample, the five factors accounted for 48.27% of the total variance, with factor 1 through 5 accounting for 29.51, 5.76, 4.84, 4.51, and 3.66 % of the variance, respectively. Fifteen items had their highest loading on Factor 1, while Factor 2, 3, 4, 5, contained 13, 7, 8, and 6 items respectively. However, the factor structure was not clear-cut. Many items, particularly those loading highest on the first factor, had relatively high loading on several other factors as well.

The similar situations were repeated with the teacher's college sample. The five factors explained 49.26% of the total variance of the CDMSE, with factor 1 through 5 accounting for 28.52, 8.6, 4.67, 3.87, and 3.61 % of the variance respectively. Twenty-five items had their highest loading on Factor 1, while Factor 2, 3, 4, 5, contained 8, 10, 4, and 2 items respectively. Again, many items on the CDMSE failed to load on only one factor.

A second principal component factor analysis was conducted for both samples. Fourteen components had eigenvalues higher than "1". The scree plots indicated that one principal component effectively summarized the total sample variance and the remaining eigenvalues were relatively small and all about the same size (Table 2). It appeared that one factor solution was warrant.

Because of the aforementioned results, the CDMSE, instead of its five subscales, was correlated with age, gender, self-efficacy, mathematics scores, and Chinese language scores for both samples. The results indicated that age, gender, and mathematics and Chinese language scores were unrelated to the CDMSE. However, the general self-efficacy and social self-efficacy variables were positively correlated with the CDMSE in both samples ($\underline{r}$ = .45 and $\underline{r}$ = .40 in the polytechnic institute sample; r = .53 and $\underline{r}$ = .27 in the teacher's college sample respectively; Table 3).

The results of regression analyses indicated that general self-efficacy and social self-efficacy accounted for 26% of the variance in the CDMSE for students from the polytechnic institute and 29% of the variance for students from the teacher's college.

Conclusion

The results of this study generally support the use of the CDMSE as a measure of Chinese

college students' career decision-making self-efficacy beliefs. Reliability assessments of the CDMSE using two samples provide evidence on the internal consistency of the scale. In terms of construct validity, the factor analysis revealed that the CDMSE was a measure of generalized self-efficacy covering a domain of career decision-making behavior rather than an instrument that measured self-efficacy expectations for five specific career decision-making skills.

Consistent with the previous studies, this investigation also found the lack of gender differences in the CDMSE. However, unlike the prior studies, this study failed to find the relationship between age and the CDMSE. The results of the general self-efficacy accounted for a considerable variance in the CDMSE in both samples further support that the CDMSE may be a measure of generalized self-efficacy than a measure of specific career decision-making self-efficacy.

One significant contribution of this study is its systematic assessment of the psychometric property of the CDMSE in a Chinese culture. The results of the study have several implications for research and practice. First, counseling is becoming more popular in China due to the educational and employment system reform and resultant changes in Chinese people's thinking. However, Chinese psychologists do not have adequate career assessment and counseling tools (Zheng, 1998). The CDMSE appeared to be a reliable and valid instrument that could be applied by Chinese psychologists to understanding and counseling clients. However, continued evaluation of the applicability of the CDMSE to a Chinese culture is necessary before it can be used in applied settings. Second, since this study was a first attempt to investigate career self-efficacy in China, replications of this study which draw upon similar and different populations are needed. For instance, due to the privatization of the stated-owned enterprise, many workers were laid off.

They desperately need career counseling and retraining. Researchers may include this population in their future research on career self-efficacy. Finally, the limitations of the study include the use of two convenient samples and the absence of the assessment of the test-retest reliability of the scale. Future investigations should use a better sampling method (e.g., stratified sampling) and evaluate the test-retest reliability of the CDMSE whenever it is possible.

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Zheng, R. C. (Personal communication, June 20, 1998)

Table 1

Demographics of the Sample

	Polytechnic		Teachers'	
	M	SD	M	SD
Age	21	1.5	21	1.7
Gender				
Male	69		42	
Female	59		114	
Math	102	10.3	111	9.1
Language	92	10.5	96	9.7
G-Efficacy	111	24.1	108	24.2
S-Efficacy	43	13.7	41	13.1
CDMSE	293	65.2	289	59.9

Table 2

Scree plot for the sample